REMARKS

This Response is submitted in reply to the Office Action mailed on September 29, 2008. A one-month extension of time fee is submitted herewith. The Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112701-595 on the account statement.

Claims 1-20 are pending in the application. Claims 7-20 were previously withdrawn. In the Office Action, the specification is objected to and Claims 1-6 are rejected under 35 U.S.C. § 102(b). In response, Applicants have amended the Abstract. In view of the amendment to the specification and at least for the reasons provided below, Applicants respectfully request that the rejections be withdrawn.

In the Office Action, the specification is objected to. Specifically, the Abstract is objected to for use of improper language and format. In response, Applicants have amended the Abstract and submit that the Abstract, as amended, meets the guidelines under MPEP §608.01(b). Accordingly, Applicants respectfully request that the objection to the specification be withdrawn.

In the Office Action, Claims 1-6 are rejected under 35 U.S.C. §102(b) as being anticipated by E. İbanoğlu ("Rheologoical Behavior of Whey Protein Stabilized Emulsions in the Presence of Gum Arabic," *J. of Food Engineering*, Vol. 52, May 2002, pgs. 273-277) ("*İbanoğlu*"). Further, in the Office Action, Claims 1-6 are rejected to under 35 U.S.C. §102(b) as being anticipated by Prakash, et al. ("The Effects of Added Proteins on the Functionality of Gum Arabic in Soft Drink Emulsion Systems," *Food Hydrocolloids*, Vol. 4, No. 3, 1990, pgs. 185-195) ("*Prakash*"). Independent Claim 1 recites a product selected from the group consisting of a foam, an emulsion, a foamed emulsion, a dispersed emulsion and a foamed dispersion, wherein the interface water-air, water-oil or water-solid comprises a complex formed instantaneously at the interface by the mixture of at least one of a protein or peptide and at least one of a polysaccharide oppositely charged or the mixture of two proteins oppositely charged, the product having a pH range within which the electrostatic interaction between both compounds oppositely charged occurs and wherein the total amount of protein and

polysaccharide is between 0.01 and 5 % by weight. Applicants respectfully submit that *İbanoğlu* and *Prakash* each fail to disclose or suggest every element of the present claims.

İbanoğlu fails to disclose or suggest the product of Claim 1 having a pH range within which the electrostatic interaction between both compounds oppositely charged occurs. Rather, *İbanoğlu* teaches an oil-in-water emulsion prepared using whey protein isolate, *n*-hexadecane, and gum Arabic, with the emulsion being diluted in a phosphate buffer having pH 7.0. See, *İbanoğlu*, page 274, sections 2.2 ("Preparation of o/w emulsions") and 2.4 ("Emulsifying activity and emulsion stability"). By diluting the emulsion in a phosphate buffer having pH 7.0, the resulting diluted emulsion could not have a pH range within which the electrostatic interaction between both compounds oppositely charged occurs as required by Claim 1. Rather, at such a high pH, the emulsion would contain both whey protein and gum Arabic at similar charges (likely negative), preventing the requisite electrostatic interaction to occur.

The present invention controls the surface properties of water/air, water/oil and water/solid interfaces by using an ingredient mix of protein and polysaccharide or a mix of two proteins. The mix significantly enhances, in the case of foaming, the foam capacity, thereby increasing foam production and foam stability. The mix efficiency remains in the formation of electrostatic complexes under well defined conditions for, for example, pH (when electrostatic interaction occurs) and temperature (from 0°C to room temperature), as well as protein/polysaccharide or protein/protein ratios from 1:20 to 20:1 and a total protein and polysaccharide level of 0.01 to 5.0%. See, specification (Preliminary Amendment of March 24, 2005), page 22, line 20 to page 23, line 2. As provided by the specification's Examples, Applicants can accomplish the pH range for electrostatic interaction by the addition of ingredients such as lactic and citric acid to either or both the protein and polysaccharide mixtures to decrease the pH of the mixtures, and the total product, to the requisite levels for electrostatic interaction between the two mixtures. See, specification, pages 32-33, Examples 1-5.

Therefore, because *İbanoğlu* fails to teach or suggest compositions at the required pH range for promotion of electrostatic interaction, Applicants respectfully submit that *İbanoğlu* is deficient with respect to the present claims.

Prakash fails to disclose or suggest a product selected from the group consisting of a foam, an emulsion, a foamed emulsion, a dispersed emulsion and a foamed dispersion, wherein

the total amount of protein and polysaccharide in the product is between 0.01 and 5% by weight. Instead, *Prakash* teaches dissolving 240 mg of gum Arabic in 1.0 ml of water, adjusting pH to 3.0 and adding 0.2 ml of soybean oil to the resulting composition. By homogenizing this composition for 5-40 seconds, an emulsion is formed. See, *Prakash*, page 178, *Emulsion Activity Index*. Based on the percentages above (240 mg of gum Arabic for every 1.2 ml of water and soybean oil), it is clear that the emulsion has greater than 5% by weight gum Arabic. Moreover, *Prakash* teaches that proteins can be added to the above emulsion in an amount generally equal to or less than the gum Arabic. See, *Prakash*, page 178, *Emulsions Containing Added Proteins*. Therefore, the total amount of bipolymer ingredients in the emulsion (protein and polysaccharide) is easily greater than the 5% maximum amount recited in the claims.

The Office Action asserts, however, by diluting the emulsion to a final dilution of 1:1000, *Prakash* teaches a product with the 0.01 to 5% level of total protein and polysaccharide required in the present claims. Applicants respectfully disagree. *Prakash* teaches the repeated diluting of the finished emulsion (with added proteins) to the 1:1000 ratio specifically for measuring the emulsion activity index (EAI) of gum Arabic. Therefore, regardless of the total bipolymer level after dilution of the emulsion, the finished emulsion (before dilution) has a total protein and polysaccharide level clearly exceeding the range of the claims.

Moreover, even if assuming that the diluted emulsion reads on the product of the present claims, the diluted emulsion is still deficient because if would fail to have a pH range within which the electrostatic interaction between protein/polysaccharide oppositely charged occurs as required by the present claims. To measure the EAI of the emulsion taught in *Prakash*, one milliliter of the emulsion is diluted by nine milliliters of water. One milliliter of the diluted emulsion is again diluted in another nine milliliters of water. After another 1:10 dilution of one milliliter of the twice diluted emulsion, the resulting dilution is approximately one milliliter of original emulsion per 1000 milliliters of water. Given that the pH of water is 7, the pH of the 1:1000 diluted emulsion is approximately 7. Therefore, the 1:1000 diluted emulsion could not have a pH range within which the electrostatic interaction between both compounds oppositely charged occurs as required by Claim 1. Rather, similar to *İbanoğlu*, at such a high pH, the emulsion would contain both protein and gum Arabic at similar charges (likely negative),

preventing the requisite electrostatic interaction to occur. Therefore, *Prakash* is deficient with respect to the present claims.

Accordingly, Applicants respectfully request that the anticipation rejections of Claims 1-6 be withdrawn.

For the foregoing reasons, Applicants respectfully request reconsideration of the above-identified patent application and earnestly solicit an early allowance of same.

Respectfully submitted,

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